

### **How long could a human live?**

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There is sustained and widespread interest in understanding the limit, if any, to the human lifespan. Apart from its intrinsic interest, changes in survival in old age have implications for the sustainability of social security systems. Recent analyses of data on the oldest human lifespans have led to competing claims about survival and to some controversy, due in part to inappropriate use of statistical methods. One central question is whether the endpoint of the underlying lifetime distribution is finite. This talk will discuss the particularities associated with such data, outlines correct ways of handling them and presents suitable models and methods for their analysis. We illustrate the ideas through novel analysis of data on semi-supercentenarian lifetimes, which suggests that any upper limit to human lifetimes lies well beyond the highest lifetime yet reliably recorded, with lower limits to 95% confidence intervals around 130 years, and maximum likelihood estimates well above 130 years. The work is joint with Léo Belzile, Jutta Gampe, Holger Rootzén and Dmitrii Zholud.